

WHAT IS CLAIMED IS:

1. A method of performing business process analysis, wherein systems that perform activities of a monitored business process and a control for the monitored business process communicate by storing and retrieving entries in a first data store, the method comprising:
- 5 maintaining a model of the business process, where elements of the model correspond to activities of the monitored business process;
- storing parameters of activities of the monitored business process in a second data store and identifiably storing a relationship among the stored parameters of activities of individual instances of the monitored business process;
- 10 detecting an update to the first data store;
- retrieving an updated content from the first data store;
- determining whether the updated content corresponds with an activity belonging to the monitored business process; and
- 15 identifiably storing a parameter of the activity and storing a relationship of the activity to an instance to which the activity belongs when the activity corresponds to the monitored business process.
2. The method as defined in Claim 1, further comprising allowing a user to select the parameter from the updated content that is stored in the second data store.
- 20 3. The method as defined in Claim 1, further comprising detecting the update to the first data store by receiving an interrupt from the first data store.
4. The method as defined in Claim 1, further comprising detecting the update to the first data store by polling the first data store.
- 25 5. The method as defined in Claim 1, further comprising computing a parameter by measuring a time between activation of the activity and completion of the activity.
6. The method as defined in Claim 1, wherein the first data store comprises:
- a first queue that allows the control to store entries corresponding to activities to be performed by the systems; and
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a second queue that allows the systems to store entries corresponding to status for the activities.

7. The method as defined in Claim 1, further comprising controlling the business process with the model of the business process.

5 8. The method as defined in Claim 1, further comprising:
monitoring a plurality of instances of the business process;
retrieving at least a portion of the plurality of instances; and
performing a statistical analysis on the at least portion of the plurality of monitored instances.

10 9. A method of performing business process analysis, wherein systems that perform activities of a monitored business process and a control for the monitored business process communicate over a network by storing and retrieving entries in a first data store, the method comprising:

15 maintaining a model of the business process, where elements of the model correspond to activities of the monitored business process;

storing parameters of activities of the monitored business process in a second data store and identifiably storing a relationship among the stored parameters of activities of individual instances of the monitored business process;

20 monitoring network traffic to and from the first data store;
identifying data in the network traffic that relates to the monitored business process and capturing the identified data; and

25 storing a parameter of the corresponding activity from the captured data and relating the parameter to an instance of the business process by storing a relationship of the activity to the instance to which the activity belongs.

10. The method as defined in Claim 9, further comprising allowing a user to configure storage in the second data store of a selected parameter from a plurality of parameters in the captured data.

30 11. The method as defined in Claim 9, further comprising controlling the business process with the model of the business process by enabling an element of the model to activate the element's corresponding activity.

12. A method of identifying bottlenecks of an automated business process for business process analysis by collecting detailed metrics and attributes of individual instances of the automated business process, the method comprising:

- 5 interconnecting multiple computer systems through a network, where the multiple computer systems perform states of the business process;
- creating a model of the automated business process wherein elements of the model corresponds to states of the automated business process;
- translating messages for at least one of the multiple computer systems such that a control system can communicate with the multiple computer systems
- 10 to initiate states for the business process;
- monitoring the translated messages on the network;
- detecting a request related to initiation of an instance of the automated business process;
- initiating an instance of the model for the business process;
- 15 identifiably maintaining elements in the model for the business process such that the elements corresponding to the instance of the business process are related;
- detecting a start time for a state of the automated business process and storing the start time in the corresponding element of the instance of the model;
- 20 and
- detecting an end time for the state of the automated business process and storing the end time in the corresponding element of the modeled business process.

13. The method as defined in Claim 12, further comprising:
- 25 allowing a user to select a business metric of a state to be monitored;
 - monitoring the business metric over the network;
 - identifiably storing the business metric such that the business metric can be identified with the state and the instance.

14. The method as defined in Claim 13, wherein the business metric is an
- 30 indication of whether an item ordered through an e-commerce implementation of the automated business process is in stock.

15. The method as defined in Claim 12, further comprising detecting and storing a start and a stop time for all the states of the entire automated business process.

16. The method as defined in Claim 12, wherein the states of the automated business process are modeled as elements of the modeled business process in a one-to-one relationship.

17. The method as defined in Claim 12, wherein the model for the automated business process is incorporated into a control for the automated business process.

18. The method as defined in Claim 12, further comprising computing a duration for the state by subtracting the start time from the end time.

19. The method as defined in Claim 12, further comprising displaying a plurality of elements of the modeled business process and displaying an efficiency attribute related to the states corresponding to the elements.

20. The method as defined in Claim 19, wherein the efficiency attribute is selected from a duration of the state, a success/failure indication for the state, and a cost associated with the state.

21. A method of monitoring an efficiency of a distributed process for business process analysis, the method comprising:

creating a model of at least a portion of a process flow, where the modeled process defines the process flow into activities;

communicating with a plurality of remote computer systems, where a remote computer system performs an activity of the distributed process;

initiating an instance of the process flow of the distributed process;

controlling the process flow by communicating with the remote computer systems to activate states of the modeled process flow;

tracking time metrics, wherein a time metric includes a duration of time from an initiation of an activity to a completion of the activity;

maintaining the time metrics in the data store;

collecting a process attribute associated with the instance; and

identifiably maintaining in the data store, the time metrics and the specified process attributes to the instance of the process flow.

22. The method as defined in Claim 21, wherein a user can select a process attribute to collect from a plurality of available process attributes.

23. The method as defined in Claim 21, wherein the efficiency monitored relates to monitoring a process bottleneck.

5 24. The method as defined in Claim 21, wherein the efficiency monitored relates to monitoring an effect of a change in a business process.

25. The method as defined in Claim 21, further comprising correlating the time metrics with the specified process attributes to provide an indication of a likely source of a bottleneck.

10 26. The method as defined in Claim 21, further comprising correlating the time metrics with the changes to a process to provide an indication of a result of the changes to the process.

27. The method as defined in Claim 21, further comprising:
monitoring a plurality of instances of the distributed process;
15 retrieving at least a portion of the plurality of monitored instances; and
performing a statistical analysis on the at least portion of the plurality of monitored instances.

28. The method as defined in Claim 27, wherein the statistical analysis is used to display a bar chart, wherein different instances are arranged along an x-axis, and
20 corresponding order quantities are arranged along a y-axis.

29. The method as defined in Claim 27, wherein the statistical analysis is used to display an X-Y plot, wherein calendar days are arranged along an x-axis, and a customer return-rate is arranged along a y-axis.

30. The method as defined in Claim 21, further comprising:
25 communicating with an external application that maintains an attribute related to at least one activity of the distributed process; and
receiving the attribute from the external application, and relating the attribute to the at least one activity.

31. The method as defined in Claim 21, further comprising retrieving and
30 displaying the stored time metrics from the data store.

32. The method as defined in Claim 21, further comprising compensating for inactive periods in the calculation of the time metric.

33. The method as defined in Claim 21, further comprising:

accumulating multiple time metrics corresponding to multiple instances of the process flow; and

displaying a set of time metrics corresponding to instances from the multiple instances of the process flow.

34. The method as defined in Claim 21, further comprising:

accumulating multiple time metrics corresponding to multiple instances of the process flow;

selecting an activity of the process flow;

classifying instances of activities according to ranges of time, the ranges of time corresponding to the time metric; and

computing and displaying a histogram, where the histogram illustrates frequencies of classes of activities versus ranges of time.

35. The method as defined in Claim 21, further comprising:

comparing in real time, a time variable with a time metric of an activity currently in progress; and

providing an alert when the time metric exceeds the time variable.

36. The method as defined in Claim 35, further comprising enabling an inclusion of a remark upon occurrence of the alert, the remark identified as corresponding to the activity exceeding the time variable.

37. The method as defined in Claim 21, further comprising:

accumulating multiple time metrics corresponding to multiple instances of the process flow;

maintaining a plurality of time variables, where a time variable is related to a duration of a monitored activity;

selecting a display instance from the multiple instances, where at least one activity of the display instance exceeded the corresponding time variable;

and

displaying the modeled business process as a flowchart, where the flowchart represents activities of the modeled business process as objects, where an object includes a name of the corresponding activity and the time metrics corresponding to the selected display instance.

5 38. The method as defined in Claim 37, wherein the corresponding time variable is the maximum expected duration for the corresponding activity.

39. The method as defined in Claim 37, wherein the corresponding time variable is configurable by the user.

10 40. The method as defined in Claim 37, wherein the corresponding time variable is within a range of 2 to 5 times an expected amount.

41. The method as defined in Claim 21, further comprising:

accumulating multiple time metrics corresponding to multiple instances of the process flow;

15 displaying a list of at least a portion of the multiple instances of the process flow;

enabling a user to select an instance from the list; and

displaying a flowchart of the process flow, where the flowchart includes a duration for the activities of the instance.

20 42. The method as defined in Claim 21, further comprising displaying the modeled business process as a flowchart, where the flowchart represents activities of the modeled business process as objects, where an object includes a name of the corresponding activity and the corresponding time metric for the activity.

25 43. The method as defined in Claim 42, further comprising emphasizing an object in the flowchart that corresponds to an activity of the instance that took the longest time.

44. The method as defined in Claim 42, further comprising emphasizing an object in the flowchart according to a state of the corresponding activity.

30 45. The method as defined in Claim 44, wherein the state is selected from a waiting state, a running state, a done state, a failed state, a roll-back state, and an aborted state.

46. An analyzer for evaluating business processes, wherein systems that perform activities of a monitored business process and a control for the monitored business process communicate by storing and retrieving entries in a first data store, the analyzer comprising:

5 means for maintaining a model of the business process, where elements of the model correspond to activities of the monitored business process;

means for storing parameters of activities of the monitored business process in a second data store and identifiably storing a relationship among the stored parameters of activities of individual instances of the monitored business process;

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means for detecting an update to the first data store;

means for retrieving an updated content from the first data store;

means for determining whether the updated content corresponds with an activity belonging to the monitored business process; and

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means for identifiably storing a parameter of the activity and storing a relationship of the activity to an instance to which the activity belongs when the activity corresponds to the monitored business process.

47. An analyzer for performing analysis of distributed business processes, the analyzer comprising:

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a network device adapted to communicate with external systems, where an external system performs an activity of the business process;

a translating module adapted to translate a message to and from a first format to a second format, where the first format corresponds to a message format of the analyzer and the second format corresponds to a message format of the external system;

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a queuing module adapted to initiate activities of the distributed business process;

a memory device adapted to store data, where the data stored includes a model for the business process, where the model includes stages that correspond to activities of the business process, and where the memory device is further adapted to store parameters of an instance of the business process such that the

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stored parameters for the instance are identifiably maintained from stored parameters for other instances;

5 a data retrieve module adapted to retrieve data from the memory device, where the data retrieve module relates a stage from the model of the business process to the activity such that the first system identifies the second system from the other systems; and

10 a data store module adapted to use the network device to communicate with the second system to monitor the activity and to store the performance related parameter in the data device and is further adapted to relate the parameter to the instance to which it applies.

48. The system as defined in Claim 47, further comprising a display device adapted to present a compilation of a plurality of collected parameters of instances of the business process.

15 49. A tracking system that tracks and analyzes business metrics for analyzing a business process wherein the business process includes a first activity and a second activity, where the first activity is performed by a first activity system with a first translating module and the second activity is performed by a second activity system with a second translating module, the tracking system comprising:

20 a controlling system adapted to communicate with the first and the second activity systems to activate the first and the second activities;

a translating system adapted to reformat data such that the controlling system can communicate with the first and the second activity systems;

25 a monitoring system adapted to track the business process with a model of the business process, the monitoring system further adapted to detect a communication that corresponds with an activity of the business process, to capture a metric of the activity and identifiably relate a plurality of metrics of activities corresponding to an instance of the business process; and

30 an analysis system adapted to retrieve the captured metrics and to retrieve the related plurality of metrics such that a business analyst can analyze the business process.

50. The tracking system as defined in Claim 49, wherein the translating system further comprises:

an input queue adapted to store messages from the controlling system to the first and the second activity systems;

5 an output queue adapted to store messages from the first and the second activity systems to the controlling system;

a first application interface adapted to convert messages from a first format corresponding to the first activity system to a controlling system format, the first application interface further adapted to convert messages from the controlling system to the first format; and
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a second application interface adapted to convert messages from a second format corresponding to the second activity system to the controlling system format, the second application interface further adapted to convert messages from the controlling system to the second format.

15 51. The tracking system as defined in Claim 49, wherein the monitoring system is further adapted to permit a user to configure the monitoring system such that the monitoring system selectively collects metrics specified by the user.